Does It Work?: Examining the Utility of the Stress Process Model for Explaining Variations in Mental Health among African American Young Adults

By

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INTRODUCTION

For the past few decades, sociologists have utilized and evaluated the stress process model in an effort to explain the social distribution of mental health as well as uncover relevant social experiences and circumstances that account for such observed distributions. This model posits that stressors and coping resources arise out of one's social context and combine in ways that determine mental health risk (Pearlin 1989). Disadvantaged individuals, for example, are more likely to be exposed to more stressors and have fewer available coping resources relative to their advantaged counterparts. Research on the stress process model has consistently found higher levels of stress exposure to predict higher levels of psychological distress or depressive symptoms (Avison, Ali, and Walters 2007; Taylor and Turner 2002; Williams et al. 1997). Additionally, when considered along with coping resources, stress exposure is shown to account for a substantial portion of observed variation in mental health across SES, race, and marital status (Turner and Lloyd 1999; Turner and Avison 2003).

Though the stress process model has become a prominent theoretical framework for understanding social variations in mental health (Taylor and Turner 2002; Thoits 2010), the vast majority of available evidence supporting the model has come from cross-sectional studies of white populations. Indeed, a careful review of the literature revealed virtually no studies that have examined the explanatory utility of the stress process model within an African American sample. Thus, a crucial question remains of whether and to what extent this dominant sociological model for understanding social contingencies in mental health can be usefully applied to African Americans and can be utilized to predict mental health risk over time. The present paper addresses this crucial question. Specifically, it considers the degree and adequacy

with which stress process elements, both individually and collectively, explain differences in mental health outcomes among African Americans and over time.

BACKGROUND

The Stress Process Model

A guiding principle within the sociology of mental health is that social experiences and contexts substantially define the conditions of life that lead to inequalities in mental health. Put differently, the social environment, and differences in the way individuals experience the social environment, has consequences for one's mental health status. Stress process models, which are frameworks used to explicate the interrelationships among factors thought to be relevant to mental heath risk, emerged from such a principle. The model considered here is informed by Leonard Pearlin's (1989) assertion that one's exposure to stress and availability of coping resources arise out of the social context in which he or she lives. Risk and protective factors are socially distributed, with more disadvantaged statuses conferring more stressors and fewer social and personal resources, such as social support, self-esteem, and sense of mastery. Combinations of high stress exposure and low levels of protective factors result in negative mental health outcomes (see Figure 1).

Empirical findings demonstrate the adequacy with which both the full stress process model and individual elements of the model explain variations in mental health outcomes within and across certain populations (Meyer, Schwartz, and Frost 2008; Taylor and Turner 2002, Turner and Avison 2003; Turner and Marino 1994; Williams et al. 1997). For example, Sternthal and colleagues (2011) found that differential exposure to social stressors explained a substantial portion of the racial gap in depressive symptoms, while Turner, Taylor, and Van Gundy (2004) found that several personal resources, including the ones examined in this paper,

significantly predicted depressive symptomatology, as well as moderated the positive relationship between social stress and depressive symptoms among a racially diverse sample. Furthermore, Turner and Lloyd (1999) found that independently, every stress process element (i.e. – stressors, social and personal resources) contributed significantly toward explaining variations in depressive symptoms among Canadian adults. Thus, empirical investigations have established the utility and explanatory ability of the stress process model for explaining both between and within group variations in depressive symptoms.

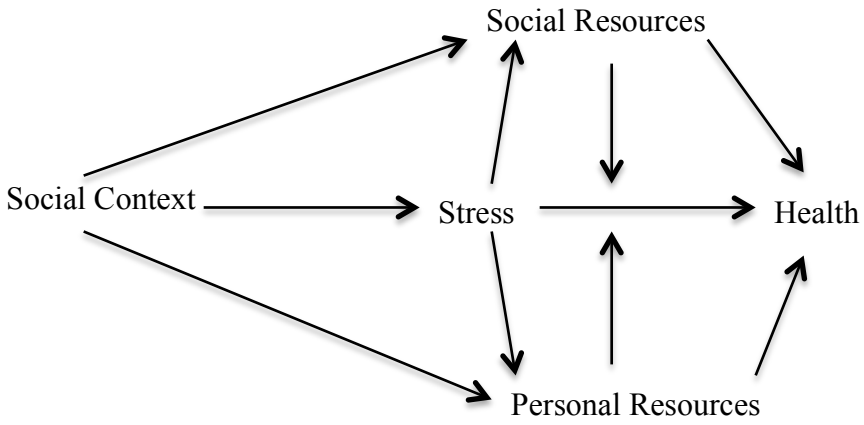

Figure 1. The Stress Process Model

Though past research provides a significant amount of evidence in support of the stress process model, a critical limitation to such work is that a majority of studies have employed samples largely composed of whites. Therefore, the question of the utility, adequacy, and viability of the stress process model for explaining variations in mental health risk among African Americans remains to be evaluated. As has been noted, the question is one of whether

"one model fits all" (Lincoln, Chatters, and Taylor 2003; Simons et al. 2002), or whether the core factors and their interrelationships differ among minority groups.

In the absence of effective tests of the stress process model among African Americans, research is examined bearing upon the explanatory utility of individual elements of the model. The goal is to specify what is known about each component and, in the process, to evaluate the potential utility of the full model for understanding variations in mental health among African Americans.

Stress, Discrimination, and Depressive Symptoms Among African Americans

Stress is the central component of the stress process model. The independent and interactive effects of stress on mental health among African Americans are well documented in the literature. Studies show that many types of stressors, ranging from discrete events to more enduing forms, significantly impact depressive symptoms among this racial minority group (Brown et al. 2000; Jackson et al. 1996; Lincoln et al. 2007; Nyborg & Curry 2003; Schulz et al. 2006; Simons et al. 2002; Wong et al. 2003). For example, in a sample of African American adults aged 18-54, Lincoln, Chatters, and Taylor (2005) found that financial strain and traumatic events were directly linked to increased amounts of depressive symptoms.

Although individuals may be negatively affected by a variety of stressors, a sizable portion of the stressful experience, particularly for individuals of color, includes experiences of perceived discrimination. Sellers et al. (2003), for example, found evidence of direct and indirect relationships between perceived racial discrimination, stress, and psychological distress among African American young adults. Specifically, experiences of both discrimination and other stress dimensions had direct positive impacts on psychological distress, while stress also partially mediated the link between perceived racial discrimination and distress. Higher levels of

perceived discrimination were associated with elevated levels of stress, which, in turn, predicted higher levels of psychological distress.

Research has also shown the pervasiveness of the effects of racial discrimination on mental health over time. Brown et al. (2000), for instance, found that racial discrimination experienced by black Americans was associated with increased psychological distress across two waves of data. Further analyses showed that distress did not significantly predict discrimination, confirming the theorized order of causal flow (from discrimination to distress). Schulz et al. (2006) also found that changes in everyday encounters with discrimination over time were causally associated with poorer subsequent mental health for black women in Detroit. The association held above and beyond effects of income and education. Discrimination may exert this particularly significant impact on the mental health of African Americans given that such experiences occur within the context of a multitude of other stressors that African Americans tend to face. Indeed, several studies show that African Americans are exposed to more stressors of all kinds, including discrimination stress, which have adverse consequences for mental health, particularly depression (Kessler, Mickelson, and Williams 1999; Mustillo et al. 2004; Turner and Avison 2003). It is reasonable to argue that such heightened exposure to various stressors is due, in part, to their greater experience of discriminatory behaviors at multiple levels (many of which may threaten their well-being), as well as their disproportionate representation within the lower rungs of the socioeconomic hierarchy (Kessler, Mickelson, and Williams 1999; Williams 2012). Combinations of high stress exposure and heightened discriminatory experiences among African Americans appear to represent circumstances that result in increased levels of depressive symptomatology. Thus, this portion of the stress process model has relevance that parallels that observed among whites.

Social Support and Depressive Symptoms Among African Americans

Stress researchers have considered social support to be among the significant mediators of the stress-mental health relationship (Pearlin et al. 1981). Social support is posited to reduce the potentially negative impacts of stress on mental health, thereby acting as a positive coping resource. In accordance with the stress process model, social support is hypothesized to be socially conditioned and distributed, with those of more disadvantaged statuses, such as being African American, having less social support. Despite empirical findings of lower levels of support among African Americans relative to whites (e.g., Spreitzer, Schoeni, and Rao 1996; Thoits 1995), research suggests that social support represents an effective coping resource for African Americans. African American networks of social support, which tend to consist of immediate and extended family, friends, fictive kin, community members, and church members, provide instrumental, tangible, and emotional support and advice (Brown 2008). These networks of support constitute a reliable form of coping for African Americans due to cultural factors as well as socioeconomic circumstances and barriers encountered by this population subgroup (Billingsley 1992; Lincoln, Chatters, and Taylor 2005). Moreover, such networks among African Americans have been identified not only as an important coping resource, but also as a vital factor contributing to resiliency among this population to overcome multiple experienced adversities (Brown 2008; Pipes-McAdoo 2002). Such support may aid in adjusting to stressful life circumstances, and the avoidance of expected negative mental health outcomes. It would, therefore, be plausible to suggest that social support may play a particularly relevant role in the observed distribution of mental health among African Americans.

Empirical investigation of the link between social support and mental health outcomes among African Americans, particularly within a stressful context, has been sparse. Though there

have been some mixed findings (e.g., Brown et al. 1992), most of these studies tend to find a direct beneficial effect of social support on mental health and, at times, a mediating effect on the link between stress and depressive symptoms (Dressler 1985; Fitzpatrick et al. 2005; Harris and Molock 2000; Lincoln, Chatters, and Taylor 2005). Moreover, empirical research has provided evidence of this posited primacy of social support as a coping resource among African Americans. In particular, some studies suggest that support may operate differently among blacks and whites, and that support may be an especially important coping resource for black individuals. For example, Lincoln, Chatters, and Taylor (2003) found that the mechanisms underlying psychological distress differed for blacks and whites. Specifically, these authors found that among various support, stress, and personal resource measures, social support was a stronger predictor of psychological distress among African Americans than whites and that such support was unaffected by financial strains and traumatic events. Increased levels of support were associated with fewer depressive symptoms.

Personal Resources and Depressive Symptoms Among African Americans

As with social support, a number of personal resources and attributes considered in empirical analyses of the stress process model have been shown to have direct effects, and potentially mediating and moderating influences, on the stress-mental health relationship. Most prior studies have only considered self-esteem and mastery in their investigation of the stress process. The present study expands the list of personal resources to also include mattering and emotional reliance. Self-esteem is defined as the evaluation an individual makes and maintains with regard to himself or herself based on their approval or disapproval towards themselves (Rosenberg 1965), while mastery is the extent to which one believes he or she has control over the opportunities and chances in their life (Pearlin and Schooler 1978). Mattering has been

defined as the extent to which one feels others depend upon, and are interested in, himself or herself. In other words, mattering is the degree to which one feels they affect the thoughts and actions of others (Rosenberg and McCullough 1981; Turner, Taylor, and Van Gundy 2004). Lastly, emotional reliance, a negative personal resource, refers to the extent to which one relies on others for their self-concept, worth, and well-being (Turner, Taylor, and Van Gundy 2004). It is the degree to which one's self-worth and self-evaluations depend upon the opinion and attention of others. Therefore, one's self-critiques and self-appraisal are subject to frequent fluctuations. Given fears of abandonment and loneliness, any such indication may diminish one's psychological well-being.

A paucity of studies have examined the extent to which personal resources directly affect mental health while even fewer have explored the potential of these resources to mediate or moderate the impact of stress on mental health outcomes among African Americans. Of the studies that do, most tend to focus on self-esteem and examine its effects on the mental health of adults or adolescents. These studies find that self-esteem has a negative relationship with depressive symptoms (Fitzpatrick et al. 2005; Munford 1994) such that more self-esteem is associated with fewer depressive symptoms. Other studies that examine self-esteem may use this resource as the outcome, rather than a predictor of mental health (e.g., Seaton and Yip 2009; Utsey et al. 2000; Wong et al. 2003). Thus, even though self-esteem may be one of the more prevalent coping resources examined in studies of African Americans' mental health, it is not always conceptualized as a factor that influences mental health outcomes.

As suggested above, few studies have examined the influences of personal resources other than self-esteem on mental health. One such study, however, found that for black adult women, experiences with discrimination lowered one's sense of mastery, which, in turn,

increased the risk for depressive symptoms (Keith et al. 2010). A higher sense of mastery was associated with fewer depressive symptoms. Another study found a stronger association between mastery and depression for black women compared to black men (Jang et al. 2005).

Research on the potential buffering effects of personal resources reveals mixed and, at times, intricate findings. For example, Fischer and Shaw (1999) found that for first and second year African American college students with higher self-esteem, perceptions of racist discrimination were linked to poorer mental health. This interaction did not hold for those of lower self-esteem. In a study of urban adolescents aged 13-19, Swenson and Prelow (2005) found that for African American adolescents perceived efficacy, similar to the concept of mastery, mediated the effect of self-esteem on depressive symptoms. Thus, the self-esteem of black adolescents in this study had a direct effect on depressive symptoms, and an indirect effect through one's perceived efficacy.

Given the scarcity of studies considering the effects of personal resources on mental health for African Americans, particularly the effects of mattering and emotional reliance, continued exploration of the intricacies of the relationships between stress, personal resources, and mental health among an African American sample is likely to prove useful.

Present Study

Overall, extensive progress has been made regarding the stress process model. Nevertheless, our knowledge of the mechanisms implicated in this model remains severely limited by current research, which has largely failed to examine the stress process within minority samples. A review of the literature on the stress process model, as well as on the effects of the model elements among African Americans, reveals several gaps that need to be filled. First, and perhaps most importantly, the present literature fails to systematically investigate the

social distribution of stress process elements among African Americans. Most prior studies simply examine the effects of certain stress process variables on mental health within African American samples, without consideration of how those variables are socially distributed within such a sample. This lack of attention overlooks a key assertion of the stress process model that needs to be evaluated within this population subgroup: whether and to what degree stressors and coping resources arise out of the context in which one lives. The present paper aims to address this gap by assessing the distribution of stress process elements within a young adult sample of African Americans. It will examine and discuss the degree to which stressors and coping resources are socially distributed.

A second gap in the stress process literature is the lack of empirical consideration of a wide array of stressors and coping resources. When exploring specific relationships or pathways within the stress process model, scholars tend to focus on particular stressors and personal resources. Doing such presents the possibility of over- or underestimating the impacts of these stressors and personal resources on depressive symptoms among African Americans. In an effort to expand the types of stressors and coping resources typically considered, this paper assesses the effects of a variety of stressors and personal resources relevant to the stress process model.

In addition, examination of the stress process literature reveals that the full model has rarely, if ever, been evaluated within an African American population. Though various stressors and coping resources are found to have both independent and collective effects on mental health outcomes, very few studies have considered both social and personal resources along with, and in the context of, stress exposure. In other words, little work has examined all of the model elements involved in the hypothesized "process", and, as a consequence, the utility of the model for African Americans remains to be effectively evaluated. A related and unresolved question is

which factors are particularly significant for mental health among African Americans. Additionally, examining the full stress process model over time among African Americans is crucial given the general underrepresentation of minorities in the mental health literature and the potential intervention implications of this type of work. This paper will address this critical issue by utilizing longitudinal analysis techniques to examine the full stress process model over a two-year time period. Due to the fact that the application of the stress process model in research varies in content and array of variables considered, the model in this study closely corresponds to the model employed in Turner and Lloyd (1999).

Taken together, the present paper strives to account for what the existing literature on the stress process model and mental health has overlooked. It aims to assess the degree to which the full stress process model explains the distribution and variation in mental health outcomes among African Americans over time. In doing so, this paper will attempt to uncover the relevant social circumstances and contexts for risk of depression among a marginalized population. This work will aid in the progression and refinement of stress theory, in addition to enhancing our knowledge concerning the health and well-being of African Americans.

DATA AND METHODS

Sample

The study analyzed in this paper builds on the South Florida Youth Development Study, a three-wave investigation based in the Miami-Dade public school system (Vega and Gil 1998). Each of the county's 48 public middle schools, 25 public high schools, and alternative schools participated. Data were originally obtained from students in grades 6 and 7 in 1990, and collected annually until 1993, when participants were in grades 8 and 9. Parents of the 9,763 male students scheduled to enter sixth and seventh grades were sent consent forms, along with

parents of the 669 female students from six schools selected to represent and approximate the overall ethnic composition of all middle schools in Miami-Dade County. Of the 10,432 prospective participants initially sampled, 7,386 students completed questionnaires at wave 1, 6,646 at wave 2, and 5,924 at wave 3. Detailed analyses demonstrated that Time1 participants were highly representative of the population from which they were drawn. The same held true for Time 3 participants despite an attrition of about 20 percent across the three waves (Vega and Gil 1998).

While observing the ethnicity criteria, all female participants, along with a random sample of 1,264 male participants, were selected for follow-up in 1998. This random male sample was drawn such that there was an approximately equal proportion of non-Hispanic whites, African Americans, those of Cuban ancestry, and those that represented "other Hispanic" backgrounds from the Caribbean Basin. To supplement the female sample, the original Miami-Dade County sixth and seventh grade class rosters were employed as the sampling pool. One thousand girls were randomly selected from this pool and stratified to achieve the intended ethnic distributions. Overall, 70.1 percent of those recruited for the study were successfully interviewed for this follow-up. The greatest loss (48.1%) occurred in the new sample of females who had no previous involvement in the study. In addition, although a significant number of those in the original sample had left the area to attend college or for other reasons, 76.4 percent of the subjects from the original sample were successfully interviewed. Most of the participants in the sample (93%) were between 19 and 21 years old at the time of the follow-up interview.

The analyses to be presented are based on data obtained in the follow-up interviews conducted between 1998 and 2000 and between 2000 and 2002. The young adults were queried about their relationships with their families, boyfriends/girlfriends, and friends, substance use,

important and stressful events in their lives, various types of stressors, experiences of discrimination, sources of strength and support, mental health, and culture/ethnicity. The information was collected using computer assisted personal interviews, with each interview lasting about two hours. Interviews were conducted with each participant two years apart. Those interviewed were compared with the random sample drawn from the original study. This analysis revealed no statistically significant differences on an array of early adolescent behaviors and family characteristics that likely affect mental health and substance abuse risks. One may therefore argue that this sample is representative of the population from which it was drawn.

These data are unique in that they represent one of the largest samples within this age range studied in the U.S., there are nearly equal proportions of males and females, and the sample is racially/ethnically diverse with an approximately equal proportion of four races and ethnicities. In this paper, however, only African Americans are considered. This resulted in 434 participants in wave 1 and 291 participants in wave 2. When the two waves were merged, a final sample size of 283 resulted. Lost cases were highly similar on almost all study variables except for family and friend support and depressive symptoms. Those who did not participate in the second wave of data collection tended to report more eventful stressors, less friend support, and higher levels of depressive symptomatology. No statistically significant differences were found among the remainder of the stress process elements, including gender, socioeconomic status of origin, household type, lifetime exposure to major and potentially traumatic events, chronic stressors, discrimination stress, family support, and all personal resources. Additionally parent interviews are considered only when information regarding the participants' socioeconomic background is needed. If these responses are missing from these parent interviews, the young adults' responses to questions of socioeconomic circumstances in childhood are used.

Measurement

Depressive symptomatology. The outcome of interest is depressive symptomatology. This variable is measured using a modified version of the twenty items that comprise the Center for Epidemiologic Studies-Depression (CES-D) scale (Radloff 1977). The respondents were asked how frequently they underwent various experiences over the last month rather than within the last week. Examples of statements regarding these experiences include, "You felt that you could not shake off the blues", "You felt that you were just as good as other people", "You had crying spells", and "You felt that people disliked you". Response categories included 1 ("not at all"), 2 ("occasionally"), 3 ("frequently"), and 4 ("all the time"). Response categories are coded in a 0,0,1,2 fashion, thereby combining the "not at all" and "occasionally" categories. This was done so that only relevant, longer lasting symptoms, which have the potential to affect role performance, are predicted. Symptoms that are fleeting may not have the power to significantly alter one's role performance, such as being a mother, a teacher, or a friend. Such a coding system has been employed elsewhere (e.g., Turner, Taylor, and Van Gundy 2004). Higher values of this measure indicate higher levels of depressive symptomatology.

Social Stress. A measure of stress exposure, called *social stress*, is utilized, which is comprised of four dimensions of stressful experience: recent eventful stress, lifetime exposure to major and potentially traumatic events, chronic stress, and discrimination stress. *Recent eventful stress* was assessed using a thirty three-item checklist of stressful events that respondents experienced within the last year. Such items include ever being in trouble with the law or having an abortion or miscarriage. The checklist asked whether the event occurred, and if so, whether it happened to the respondent or to their partner/spouse, parent, or other relative or friend. The

beginning and end month within which the event occurred was also asked. Events the respondent reported to have experienced personally were summed to create the measure.

A checklist of twenty-six serious or life-threatening events, such as witnessing or being a victim of abuse, or being threatened with or shot by a gun, indexed *lifetime exposure to major and potentially traumatic events*. Similar to recent eventful stressors, respondents were asked whether the event occurred, how many times, and their age at the first and last occurrence of the event. Number of events reported were again summed. The *chronic stress* measure is composed of thirty-seven items describing various persistent stressors that may arise in the realms of general life, employment, relationships, children, residence, and school. Examples include "Too much is expected of you by others", "Your supervisor is always watching what you do at work", "You are looking for a job and can't find the one you want", "There are some places in your neighborhood where you would never feel safe", and "You are not sure that you will be able to complete your education". The respondent was asked to rank each situation on a scale of 1 ("not true") to 3 ("very true"). If the response was a 2 ("somewhat true") or 3, the respondent received a value of 1. If the response was 1 ("not true"), the respondent received a value of 0. All of the stressors that the respondent reported to be "somewhat true" or "very true" were then summed.

The measure of *discrimination stress* for this study considered two types of discriminatory experiences: major events and day-to-day experiences. The values of *major discrimination* reflect the sum of major events that the respondent reported to have experienced. Such events include being unfairly fired or denied a promotion, unfairly treated by the police, or unfairly discouraged by a teacher or advisor from pursuing the job/career they wanted. Seven items, in total, were considered. These events are deemed "major" events because they tend to interfere with one's socioeconomic mobility, life chances, and well-being (Williams et al. 1997).

Day-to-day discrimination was comprised of nine items that are considered more "character assaults" (Kessler et al. 1999:212). These items were reported to have occurred on a more daily basis. Examples include being treated with less courtesy, not being thought of as smart, being called names or insulted, and being threatened or harassed (Williams et al. 1997). Scores of day-to-day discrimination reflect the sum of Likert scores across the nine items. Responses ranged from 1 ("almost always") to 5 ("never"). Scales were reversed when needed so as to have higher values indicate greater experiences with daily discrimination (alpha = .837). The social stress measure is comprised of the standardized sums of the previous five stress indicators. Higher values of this stress measure represent more exposure to social stress.

Social Support. The social support measure is comprised of two types of perceived support: familial and friends. *Family support* consists of fourteen items regarding the respondent's relationship with their family, such as perceived closeness to, demandingness of, and ability to relax with one's family (alpha = .867). *Friend support* is comprised of eight items that inquire about aspects of respondents' relationships with friends (alpha = .915). Items attempt to tap into respondents' perceptions of the trust, care, and confidence their friends have in them, and they have in their friends (Turner and Marino 1994). Both types of support were measured on Likert scores ranging from 1 ("strongly agree") to 5 ("strongly disagree"). Likert scores are reversed when necessary and summed across each of the family and friend support items to create independent measures of perceived family and friend support. The social support measure reflects the standardized sums of the family and friend support variables. A higher score on this measure indicates more perceived social support.

Personal Resources. Four personal resources are considered in this study: self-esteem, sense of mastery, mattering, and emotional reliance. *Self-esteem* is assessed with a six-item

subscale of Rosenberg's (1979) self-esteem measure. Respondents were asked to rate statements regarding how they feel about themselves. Examples include "On the whole, you are satisfied with yourself", "All in all, you are inclined to feel that you are a failure", and "You feel that you are a person of worth at least equal to others". Responses were scored on a Likert scale ranging from 1 ("strongly agree") to 5 ("strongly disagree"). Scales were reversed, when necessary, and summed across the six items (alpha = .714). Higher values indicate higher sense of self-esteem.

Mastery was assessed using Pearlin and Schooler's (1978) seven-item scale. Similar to the self-esteem items, respondents were asked to rate on a scale from 1 ("strongly agree") to 5 ("strongly disagree") statements regarding the amount of self-control he or she perceives to possess. Examples include "You have little control over the things that happen to you", "You often feel helpless in dealing with problems of life", and "What happens to you in the future mostly depends on you". Scales were reversed, when appropriate, then summed in order to have higher values indicate a higher sense of mastery (alpha = .698).

Mattering was measured by utilizing the five-item scale created by Morris Rosenberg that intended to assess how respondents think others feel about them. These items include, "How important do you feel you are to others?", "How much do you feel others would miss you if you went away?", and "How much do other people depend on you?". Responses include 1 ("a lot"), 2 ("somewhat"), 3 ("a little"), and 4 ("not at all"). Again, scales are reversed and summed across the seven items. Higher values indicate a greater sense of mattering (alpha = .688).

Lastly, *emotional reliance* was measured by a four-item subset from Hirschfeld et alia's (1977) measure of interpersonal dependency. Respondents were asked to rate statements regarding how much they depend on others. These statements are "The idea of losing a close friend is terrifying to you", "You think most people do not realize how easily they can hurt you",

"You would be completely lost if you did not have someone special", and "You would feel hopeless if you were deserted by someone you love". Respondents were asked how much they agreed with each statement. Such agreement is based on a five-point scale ranging from 1 ("strongly agree") to 5 ("strongly disagree"). Consistent with the creation of the previous resource measures, scores are reversed and summed across the four items (alpha = .548). Higher values represent greater levels of emotional reliance.

Social Characteristics. Several social characteristics are taken into account, representing the context in which the respondent grew up. *Age* is a continuous variable that measures respondents' age in 1998-2000. *Gender* is indexed by a dummy variable (0=female; 1=male), while *socioeconomic status (SES)* is a composite measure that is comprised of the income, education, and occupational prestige of the respondent's major financial supporter while growing up. Each individual SES indicator is standardized prior to summing, then divided by the number of indicators on which information was available. The *household type* in which the respondent was raised is accounted for in the form of a dummy variable (0=two parent household; 1=non-two parent household).

Excluding the social characteristic variables, which are constructed only with the wave 1 data, stressors, social resources, and personal resources are created in the same manner using data from both waves 1 and 2 with the exception of social stress. The wave 2 measure of social stress does not consider lifetime exposure to major and potentially traumatic events given the low likelihood that such events increased dramatically over the course of two years. The two waves were then merged in order to conduct the longitudinal analyses. All analyses were conducted using R version 2.14.1.

RESULTS

The Social Distribution of Stress Process Variables

Table 1 presents the means and proportions of social characteristics, stress exposure, social support, personal resources, and depressive symptomatology by socioeconomic status of origin. SES of origin was divided into four quartiles based on the 25th, 50th, and 75th percentiles.

Table 1. Means and Proportions of Study Variables by SES (N = 431)

	Wave 1				
	Q1	Q2	Q3	Q4	
Age	20.45	20.20	19.82	19.67	*
Gender					
Female	60.82%	47.86%	39.45%	28.70%	*
Male	39.18%	52.14%	60.55%	71.30%	
Household Type					
Two Parent	25.00%	35.04%	33.03%	46.30%	*
Non-Two Parent	75.00%	64.96%	66.97%	53.70%	
Recent Eventful Stress	2.76	2.20	2.12	2.26	
Life Traumas	8.31	7.44	8.05	7.25	
Chronic Stress	9.88	7.92	8.95	7.82	*
Major Discrimination	1.65	1.54	1.73	1.18	*
Day To Day Discrimination	20.55	19.53	18.97	19.32	
Social Stress	0.89	-0.26	0.12	-0.61	*
Family Support	49.73	53.62	53.54	55.57	*
Friend Support	26.12	25.66	26.25	28.19	*
Social Support	-.44	-.09	.00	.54	*
Self Esteem	26.63	27.00	27.04	27.19	
Mastery	25.93	26.83	27.65	26.93	t
Mattering	17.18	17.03	17.02	17.16	
Emotional Reliance	16.44	16.05	15.50	16.00	
CES-D	7.54	6.05	5.90	5.06	*
N	97	117	109	108	

Significant differences between means and proportions across groups of SES of origin : $^{t}p<.10$; $*p<0.05$

Note: differences in household type are sigificant for both two parent and non two parent households

Note: differences in gender are sigificant for both females and males

Compared to those who grew up in lower socioeconomic statuses, those from higher socioeconomic backgrounds tend to have fewer chronic stressors, experience fewer major

discriminatory events, perceive to have more family and friend social support, possess a higher sense of mastery (though it is only a marginally significant difference), and report fewer depressive symptoms. The majority of those in the lowest quartile are from non-two parent households, while roughly half of those in the highest quartile come from two parent households. Recent eventful stressors, major and potentially traumatic events, day-to-day discrimination, self-esteem, mattering, and emotional reliance do not significantly differ across SES of origin.

These descriptive results represent a preliminary test of the stress process model. They depict the distribution of various stressors and coping resources across socioeconomic positions. Those African American young adults who came from higher socioeconomic contexts, overall, have fewer risk and more protective factors that, perhaps, lead to fewer depressive symptoms. This is consistent with what the stress process model would predict.

Though the above results provide evidence for the social distribution of various stressors, coping resources, and depressive symptoms among African American young adults, they are descriptive in nature and do not tell us anything about how much each stress process element contributes to explaining variations in depressive symptomatology. Table 2 shows the cross-sectional analysis of the stress process elements predicting depressive symptoms in wave 1 of the data. Magnitudes of both the individual and collective impacts of these elements are considered. Ordinary least squares (OLS) regressions are used to examine the extent to which each model element significantly contributes to the variation in depressive symptoms. Such a method is in accordance with other studies examining the stress process model (e.g., Turner and Lloyd 1999).

Table 2. OLS Coefficients of Time 1 CES-D Scores Regressed on Time 1 Stress Process Model Variables

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Estimate		Estimate		Estimate		Estimate		Estimate	
Age	.539	*	.635	**	.353		.250		.316	
	(.235)		(.216)		(.222)		(.211)		(.203)	
Gender[a]	-1.612	**	-2.086	***	-1.465	**	-1.464	***	-1.734	***
	(.487)		(.450)		(.456)		(.432)		(.417)	
SES	-.462	t	-.135		-.135		-.386	t	-.135	
	(.252)		(.234)		(.240)		(.221)		(.215)	
Household Type[b]	.529		.280		.451		.658		.452	
	(.504)		(.464)		(.472)		(.443)		(.423)	
Social Stress			.568	***					.368	***
			(.063)						(.064)	
Social Support					-1.114	***			-.211	
					(.143)				(.157)	
Self Esteem							-.459	***	-.400	***
							(.087)		(.085)	
Mastery							-.141	**	-.115	*
							(.048)		(.046)	
Mattering							-.470	***	-.295	**
							(.097)		(.100)	
Emotional Reliance							.196	**	.162	*
							(.070)		(.067)	
Intercept	-4.143		-5.640		-0.444		22.545	***	16.767	***
	(4.665)		(4.286)		(4.394)		(5.100)		(4.969)	
R^2	.066		.215		.183		.293		.360	
N	429		429		429		428		428	
F-Statistic	7.49		23.13		18.95		21.72		23.50	

[t]p<.10; *p<0.05; **p<0.01; ***p<0.001

Note: Unstandardized OLS regression coefficents; standard errors are in parentheses

[a]Ref group = Female

[b]Ref group = Two Parent Household

In Model 1, CES-D scores are regressed on the four social characteristic measures: age, gender, SES of origin, and household type. In Models 2-4, the stress process elements (social stressors, social support, and personal resources, respectively) are added separately to the base model.

This is done in order to examine the individual contribution of each stress process model element in explaining the observed variation in depressive symptoms among African American young adults. In Model 5, all stress process elements are considered together in order to examine their collective and independent impacts on depressive symptoms.

In Model 1 (see Table 2), only gender and age significantly impact depressive symptoms. Despite the very narrow age range involved, older individuals and women tend to have more depressive symptoms than younger individuals and men. SES of origin is also a marginally significant predictor of depressive symptoms. These characteristics, however, only account for 6.6 percent of the observed variation in depressive symptoms. In the subsequent models, we see that each stress process element has a significant independent impact on depressive symptoms in the expected directions. Increased social stressors and emotional reliance are associated with more depressive symptoms, while higher perceived social support from family and friends, higher sense of self-esteem and mastery, and a heightened sense of mattering all predict fewer depressive symptoms. Social stress, social support, and personal resources each individually account for a substantial amount of observed variation in depressive symptoms. Net of demographics, these elements explain 14.9, 11.7, and 22.7 percent, respectively, of the observed variation. It should also be noted that when considered individually (in supplemental analyses), each dimension of stress significantly contributes to the prediction of depressive symptoms. When all of the stress process elements are considered together (model 5), 29.4 percent of the observed variation in depressive symptoms is accounted for (net of demographics). With the exception of social support, all elements remain significant and exert the same type of influence on depressive symptomatology. The coefficient of social support is reduced by about 81 percent and to outside of the statistical significance threshold. It appears as if the other stress process

elements account for the effects of social support. Additional analyses show that only when both social stress and all personal resources are included in the model does the effect of social support reduce to nonsignificance. These analyses, however, indicate that out of all of the individual stress process model elements (and net of social context measures), sense of mattering reduces the magnitude of the social support coefficient the most (by about 34 percent), followed by self-esteem (social support coefficient reduced by about 30 percent). Thus, one could conclude that collectively, social stressors and personal resources are the more impactful elements on depressive symptomatology for this African American young adult sample. It is also worth pointing out that the stress process elements do not completely account for the observed gender differences in risk of depression. Such inability to explain the gender gap in depressive symptoms has been found elsewhere (e.g., Turner and Lloyd 1999). Thus, whatever it is about gender that matters for mental health is not captured in the stress process model.

Though not presented here, supplemental analyses (see Appendix A) were conducted to examine interactions between social statuses and stress process model elements. Significant interactions between gender and mattering (coefficient of .360, $p = .037$) and gender and emotional reliance (coefficient of -.261, $p = .044$) are found such that both mattering and emotional reliance have a greater impact on depressive symptoms for women. Relative to males, mattering among African American females is more protective against depressive symptoms while emotional reliance is more strongly related to increased depressive symptoms. Additionally, stress, mastery, and emotional reliance all significantly interact with class of origin. Coefficients were -.159 ($p = .010$), .098 ($p = .017$), and -.140 ($p = .027$) respectively. This indicates that the higher one's class of origin, the less powerful the impact of stress on depressive symptoms. In other words, stress more strongly predicts depressive symptoms among those who

grew up in a lower socioeconomic context compared to those who grew up in a higher social class. Moreover, both mastery and emotional reliance more greatly influence depressive symptoms among those of lower SES of origin. Relative to those of higher SES of origin, mastery is more protective against depressive symptoms for those from lower socioeconomic backgrounds while emotional reliance is more predictive of depressive symptoms. Lastly, household type has a significant interaction with mattering, with a coefficient of -.467 ($p = .010$). The protective effect of mattering on depressive symptoms is therefore more powerful for those raised in non-two parent households compared to those raised in two parent households.

Though these regression models show direct and moderating effects of stress process model elements on risk of depression, they do not provide specific information on indirect effects of predictors. A closer examination of the relationship among the stress process variables is accomplished with a path analysis. Figure 2 shows the significant path coefficients representing cross-sectional relationships among the elements in wave one. Significant direct and indirect effects of social statuses on stress exposure and availability of social and personal resources are evident. Gender appears to be particularly relevant in stress processes among African American young adults given its significant direct impact on stress exposure, perceived social support, emotional reliance, and depressive symptoms. African American men tend to report more social stressors, higher levels of perceived support from family and friends, and lower levels of emotional reliance and depressive symptoms. The apparent impact of gender on stress process model elements in this path diagram, however, does not translate into explanations for the gender-depression linkage.

SES also conditions stress exposure. Those of lower socioeconomic statuses of origin experience higher levels of stress compared to their counterparts. SES further patterns levels of perceived support, with those of higher classes having higher perceptions of support.

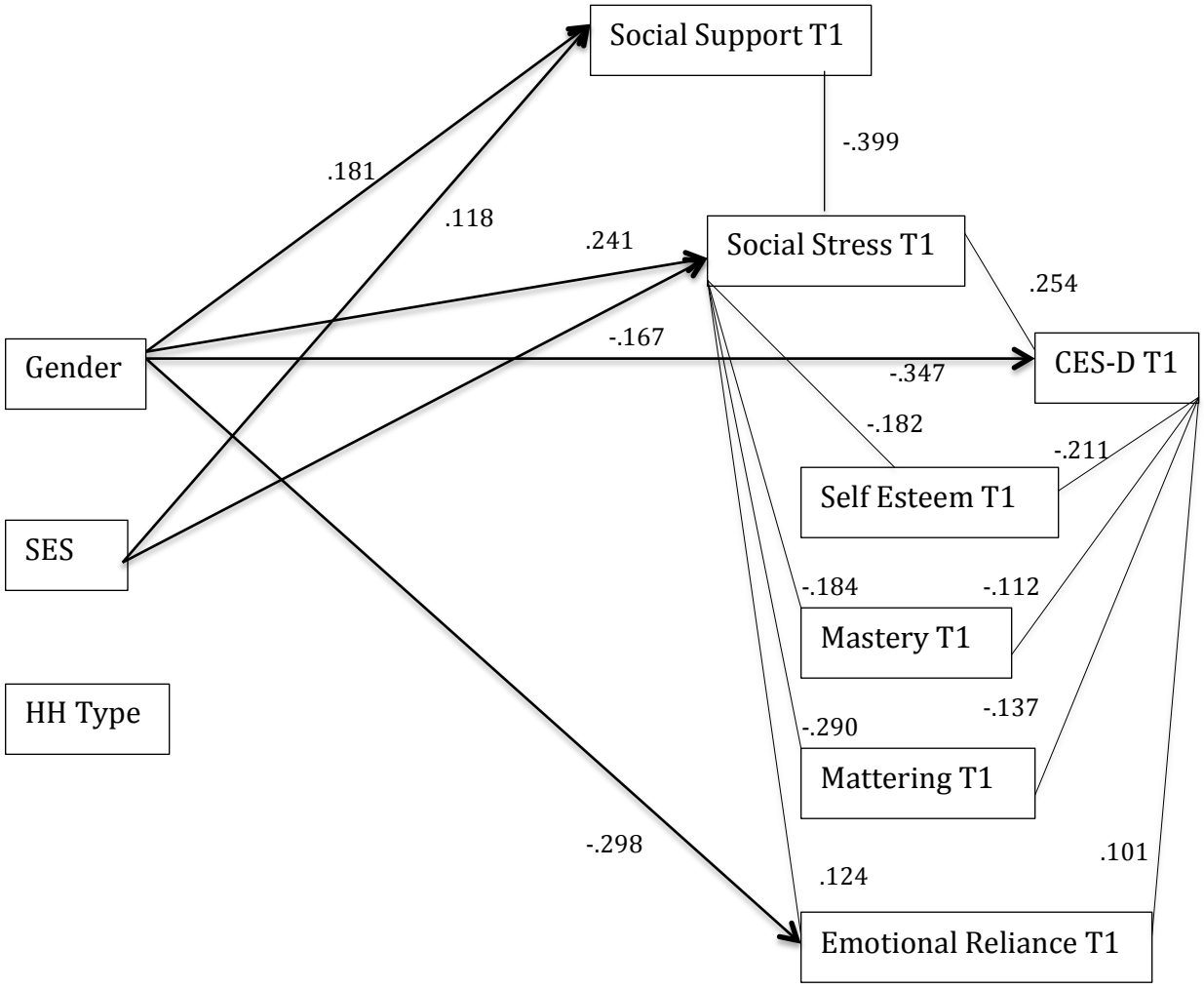

Figure 2. Cross-Sectional Path Diagram with Causal Relationships among Demographics and Time 1 Stress Process Elements (N=433)

Evidence of the indirect effects of social characteristics is also seen. As stated above, gender and SES both influence levels of stress exposure. Stress exposure, in turn, influences depressive symptoms and the perception of all the social and personal resources. Specifically, higher levels of stress are associated with more depressive symptoms and lower levels of social and personal resources, except for emotional reliance. Stress exposure is linked to higher levels of emotional reliance. Further, there are linkages between all of the personal resources and depressive symptoms. Higher levels of self-esteem, mastery, and mattering and lower levels of emotional reliance are associated with fewer depressive symptoms. Thus, there is evidence that one's social context conditions that amount of stress one is exposed to and, in turn, one's stress exposure is associated with one's accessibility to coping resources. Such coping resources hold significant implications for depressive symptoms. What is surprising, however, is that none of the social context variables (gender, SES of origin, and household type) have significant direct linkages with personal resources with the exception of the linkage between gender and emotional reliance. It therefore appears that the social context within which one is located is a more distal predictor of coping resources and depressive symptoms.

Taken together, the results from these descriptive and multivariate analyses are generally similar to those found in Turner and Lloyd (1999) and provide some evidence for the utility of the stress process model in accounting for variations in depressive symptoms among African American young adults. From OLS regressions, it appears that differential exposures to, and availability of, various stressors, social support, and personal resources account, to a considerable extent, for the observed variation in depressive symptoms. Specifically, these factors account for about 30 percent of the observed variation in depressive symptoms. In general, results of the cross-sectional path analysis are consistent with the hypothesis that one's

social locations condition one's exposure to stress and the availability of social support, but not the accessibility of personal resources. As expected, the more disadvantaged individuals (e.g., those of lower SES of origin) are further disadvantaged by higher stress exposure, but not, for the most part, by personal coping resources. This heightened exposure to stress and acquisition of social and personal resources do, however, impact the level of depressive symptomatology among African American young adults.

The analyses summarized in Table 2 and in Figure 2 only depict effects of the stress process elements at one point in time. As such, the exact causal direction is unknown such that personal resources, for example, may be predicting stress exposure. In other words, the possibility of reciprocal causation is present. Though additional analyses partially confirm this statement, theory suggests that the causal direction goes from stressors to coping resources. More direct tests of causality, however, are warranted. These cross-sectional analyses also do not give any information on the degree to which the effects of these model elements on depressive symptoms may change over time. It is also possible that some stress process elements have shorter or longer subsequent effects on depressive symptoms. To examine these possibilities, a two wave panel is employed.

Longitudinal Analyses

Table 3 presents results from the two wave panel. Model 1 regresses time two CES-D scores on respondent social characteristics. Models 2 and 3 add time one and time two predictors, respectively, to the first model. Model 4 regresses time two CES-D scores on all time one and time two predictors, plus respondents' initial CES-D scores. A number of interesting findings are evident. First, we see that none of the social context measures predict depressive symptoms two years later, with the exception of SES of origin, which is marginally significant.

Table 3. OLS Coefficients of Time 2 CES-D Scores Regressed on Time 1 and Time 2 Stress Process Model Variables

	Model 1		Model 2		Model 3		Model 4	
	Estimate		Estimate		Estimate		Estimate	
Age	.299		.049		.110		.060	
	(.278)		(.253)		(.235)		(.227)	
Gender[a]	-.469		-.312		-.411		-.114	
	(.530)		(.482)		(.447)		(.435)	
SES	-.440	t	-.174		-.030		-.008	
	(.267)		(.243)		(.226)		(.218)	
Household Type[b]	.808		.655		.559		.509	
	(.548)		(.490)		(.454)		(.438)	
Social Stress T1			.230	**	.017		-.070	
			(.076)		(.080)		(.079)	
Social Support T1			-.476	*	-.282		-.239	
			(.209)		(.219)		(.211)	
Self Esteem T1			-.330	***	-.159		-.079	
			(.098)		(.098)		(.096)	
Mastery T1			-.061		.030		.070	
			(.055)		(.054)		(.053)	
Mattering T1			-.025		.016		.111	
			(.125)		(.121)		(.118)	
Emotional Reliance T1			.187	*	.147	t	.132	t
			(.079)		(.078)		(.075)	
Social Stress T2					.455	***	.470	***
					(.098)		(.094)	
Social Support T2					-.022		.040	
					(.192)		(.185)	
Self Esteem T2					-.228	*	-.148	
					(.093)		(.092)	
Mastery T2					-.102	t	-.094	t
					(.055)		(.053)	
Mattering T2					-.144		-.207	*
					(.102)		(.099)	
Emotional Reliance T2					.175	*	.168	*
					(.069)		(.066)	
CES-D T1							.251	***
							(.053)	
Intercept	-.943		12.063	*	12.938	*	6.460	
	5.476		(6.002)		(5.934)		(5.877)	
R^2	.042		.267		.396		.443	
N	282		282		282		282	
F-Statistic	3.00		9.89		10.88		12.34	

[t]p<.10; *p<0.05; **p<0.01; ***p<0.001

Note: Unstandardized OLS regression coefficents; standard errors are in parentheses

[a]Ref group = Female

[b]Ref group = Two Parent Household

This finding is unexpected, given that gender exerts a continually significant influence on depressive symptoms two years prior. Implications and additional analyses that were conducted to explore this finding are further considered in the discussion section.

Various time one predictors, however, significantly predict subsequent depressive symptoms (model 2). Initial exposure to social stressors and emotional reliance both have a positive relationship with depressive symptoms two years later, while baseline levels of perceived social support and self-esteem have inverse relationships with subsequent depressive symptoms. Initial high levels of social stress and emotional reliance predict more symptoms, while high levels of social support and self-esteem predict fewer symptoms over time.

Furthermore, changes in social stress, self-esteem, and emotional reliance over time significantly predict subsequent CES-D scores, while changes in exposure to social stress, perceptions of mattering, and emotional reliance predict changes in CES-D scores over two years (models 3 and 4). Specifically, increases in stress exposure and emotional reliance over a period of two years predict higher levels of, and increases in, depressive symptoms over time while increases in self-esteem and mattering are associated with lower levels of depressive symptoms and decreases in depressive symptoms, respectively, over two years. The final model (model 3) accounts for a substantial portion (about 40 percent) of the observed variation in depressive symptoms, and 44 percent of observed changes in depressive symptoms (model 4).

Findings from supplemental analyses (see Appendix B) show that gender and SES both interact with various stress process elements over time. The impact of all of the personal resources differs among men and women. For example, results indicate that initial levels of mastery at time one (coefficient = -.186, p = .027) and mattering at time one (coefficient = -.476, p = .010) are protective against depressive symptoms largely among African American men.

Similarly, subsequent levels of self-esteem at time two (coefficient = -.358, p = .017) and mattering at time two (coefficient = -.390, p = .012) are more protective for African American men while subsequent emotional reliance at time two (coefficient = -.424, p = .001) has a greater impact on the changes in depressive symptoms for African American women. Increases in emotional reliance are more strongly predictive of increases in depressive symptoms for women. Additionally, subsequent levels of self esteem (coefficient = -.123, p = .043) and mattering (coefficient = -.142, p = .035) significantly interact with SES of origin. In terms of changes in depressive symptoms, those of higher SES of origin are more protected against increases in depressive symptoms by increases in level of self-esteem and mattering compared to those of lower SES of origin. Household type does not significantly interact with any stress process model mediators to predict changes in depressive symptoms.

Figure 3 presents a diagram of the significant path coefficients representing relationships over time between the stress process variables. In addition to the results derived from the cross-sectional analysis, each variable in time one significantly predicts their subsequent measure in time two. For example, stress exposure in time one predicts stress exposure two years later. The same holds true for the social and personal resources. Contrary to findings from the cross-sectional path diagram, stress in time two significantly predicts time two social support, sense of mastery, mattering, and depressive symptoms in the expected directions, rather than all coping resources. Higher amounts of stress two years later are associated with lower levels of perceived support, mastery, and mattering, yet higher amounts of depressive symptoms. Subsequent depressive symptoms are additionally predicted by baseline depressive symptoms, and all subsequent stress process model elements with the exception of social support, self-esteem, and mattering (which is reduced to marginal significance).

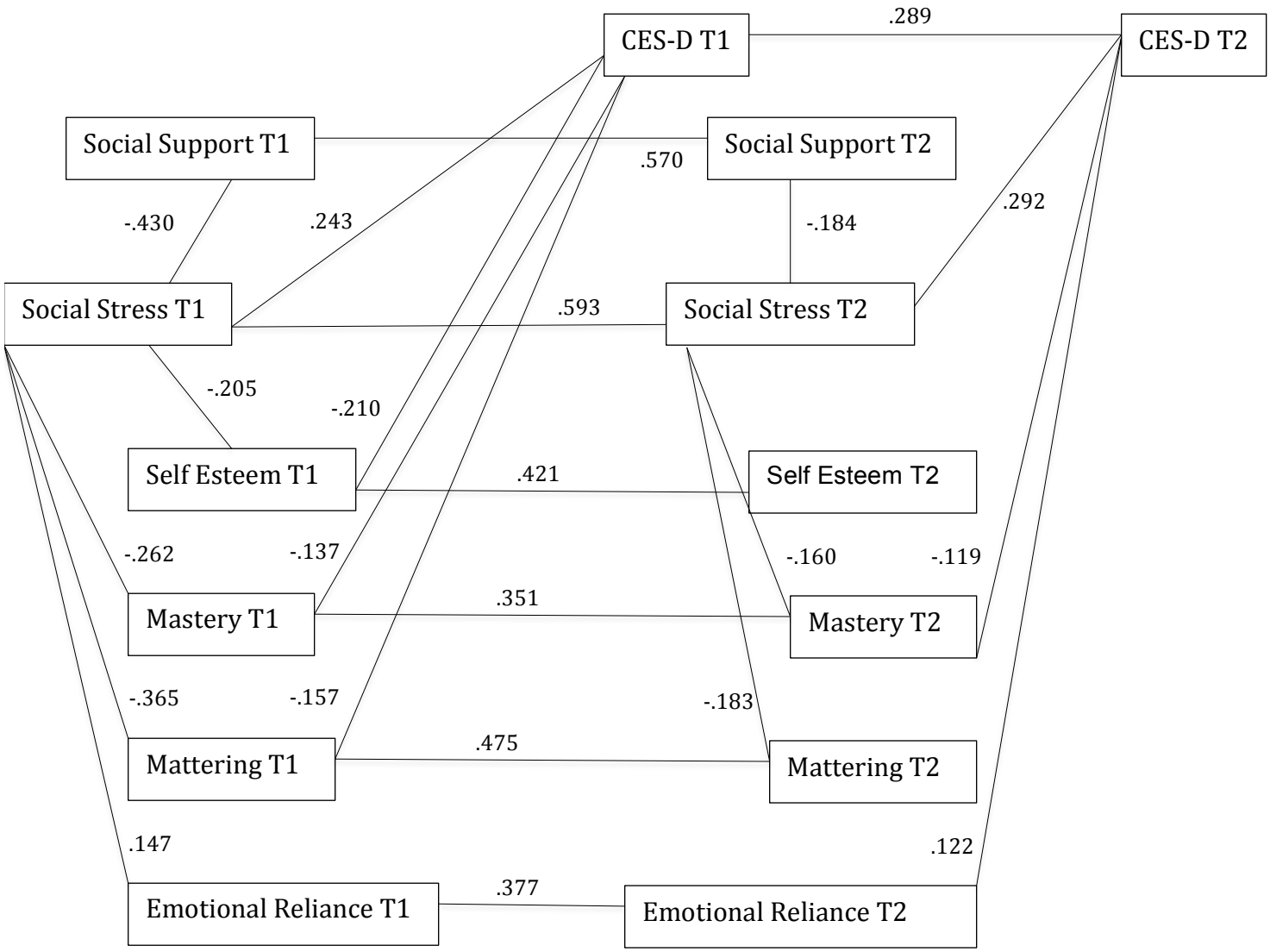

Figure 3. Path Diagram with Causal Relationships among Time 1 and Time 2 Stress Process Elements Net of Social Context Measures (N=282)

Overall, these results suggest that stress process variables indirectly impact initial and subsequent depressive symptoms for young adult African Americans. One's social characteristics influence the initial amount of stress one faces, as well as the availability of various social and personal resources. These initial stressors and coping resources condition

subsequent stressors and resources years later, which go on to impact depressive symptoms over time.

DISCUSSION

The stress process model is a widely recognized and often utilized theoretical framework for understanding observed variations in mental health (Thoits 1999; Turner and Lloyd 1999). The amount of stress one experiences, and the coping resources one has access to, is argued to arise out of the social context of one's life. We see the explanatory power of the stress process model tested on various populations, with attempts to explain social disparities in health or health variations within a specific group. However, it appears that the full model has not previously been applied to African Americans. The non-consideration of the utility of the model beyond certain groups leaves a critical gap in the ability to generalize this model to all populations. Furthermore, few studies examine the stress process over time. It is certainly possible that relationships within the stress process model, or the magnitudes of each model element, change with time.

This paper has examined the ways in which the social context of African American young adults—in the form of gender, socioeconomic status of origin, and household type—directly and indirectly influence the level of stress exposure and subsequent risk for depression both a one point in time and over time. The full stress process model has been applied to this specific sample in order to examine its utility for explaining health variations in a minority population.

The findings support the notion that one's social context, in part, determines the amount of stress to which one is exposed to and the availability of coping resources. Clearly, many of the stress process elements vary across level of SES. Specifically, those from higher

socioeconomic backgrounds tend to have fewer stressors, more social support, a higher sense of mastery, and fewer depressive symptoms than those from lower socioeconomic backgrounds. Thus, disadvantaged socioeconomic positions confer more risk factors and fewer protective resources. To evaluate the utility of the stress process model among African Americans, OLS regressions and path analyses were employed. Findings from the OLS regressions show that each element of the stress process model independently predicts depressive symptoms among African American young adults. When considered collectively, all model elements except for social support continue to exert a significant impact on the prediction of depressive symptoms.

An interesting finding, however is that social class of origin is not significant in any of the OLS models (though it has indirect effects through stress exposure); it is only marginally significant when depressive symptoms are regressed on just the social characteristic measures. This insignificance is interesting given the generally consistent finding that SES matters significantly for many health outcomes (Kawachi, Adler, and Dow 2010; Link and Phelan 1995; Turner and Lloyd 1999). Both recent and older research, however, has found the ineffectiveness of SES on several outcomes, as well as the diminishing returns of socioeconomic mobility on health for African Americans (Colen 2011; Colen et al. 2006; Smith, Kelly, and Nazroo 2009). For example, Williams, Takeuchi, and Adair (1992) found that SES was unrelated to six-month rate of depression among blacks, but it was inversely related to depression for whites. Additionally, Colen et al. (2006) found that socioeconomic upward mobility was beneficial for infants born to white women who were poor as children, but not for those born to black women who grew up poor. The mechanism through which SES and socioeconomic mobility come to affect health may be different for blacks and whites. This may be due to the effects of racism or the increased amount of stressors African Americans face, even with socioeconomic mobility

(Williams 2006). Those mechanisms may also differ, and be especially pertinent, for individuals, particularly African Americans, who are beginning to acquire their own position in the socioeconomic realm, such as young adults. Further examination of these different mechanisms of SES is certainly warranted given their social implications.

A similar situation arises with household type, which is not significant in any of the OLS models or path analyses. Prior work has found this measure to be particularly significant for mental health (Barrett and Turner 2005; Wight et al. 2005), with individuals from non-two parent households faring a bit worse in terms of depressive symptoms. The lack of significant emotional consequences of household structure found here may be due to the unique nature of the sample that was analyzed. The majority of respondents from this study grew up in non-two parent households. This similarity in household structure among students from the same area might de-stigmatize notions of growing up in a non-traditional household and therefore lessening the potential emotional impacts of growing up in households without both biological parents. Such a hypothesis, however, is in need of further exploration.

The cross-sectional results also demonstrate that the impact of several stress process elements differ based on social statuses, mainly gender and SES of origin. This is indicated by the significance of various interaction terms. Thus, there is evidence to suggest that for African American young adults, exposures to, and availability of, various stressors and coping resources arise out of the context in which they live. Overall then, though with some differences, the stress process model appears to work similarly in African American young adults as in white young adults.

Results from the longitudinal analyses revealed several noteworthy findings. For one, there was a lack of a significant gender gap in depressive symptoms two years later. Such a

finding is peculiar given the significance of a gender difference in wave 1. Additional analyses were conducted to test explanations for this lack of the gender effect related to statistical power and attrition between the two waves. These analyses, which consisted of different cross-sectional analyses of wave two data, did not provide any evidence that statistical power or attrition played a role in the insignificance of a gender effect. Additional explanations may lie in life course dynamics. Some studies have found that the gender gap in depression converges during the transition to adulthood (Adkins, Wang, and Elder 2009; Ge, Natsuaki and Conger 2006). Perhaps, then, over the two years between waves, the gender gap among these young adults became too small to detect any significant differences. Indeed, unlike the gender gap in CES-D scores in wave one, descriptives from wave two show that there are no significant differences in CES-D between African American men and women.

Findings from the longitudinal analyses also indicate that social stress and various personal resources have particularly powerful impacts on subsequent depressive symptoms for this sample. Results from the two wave panel show that social stress, social support, self-esteem, and emotional reliance two years earlier are causally related to subsequent depressive symptoms. Longitudinal findings also indicate that changes in exposure to social stress, self-esteem, and levels of emotional reliance predict subsequent depressive symptoms, while changes in social stress, sense of mattering, and emotional reliance predict changes in such symptoms. More specifically, increases in both social stress and emotional reliance lead to more adverse mental health outcomes while increases in self-esteem and mattering are linked to more beneficial outcomes. It is therefore not simply initial exposure to stress and availability of coping resources that matters for depressive symptoms among this sample. This finding demonstrates the continued significance of stress process elements over two years. It is therefore important to

discover factors that determine the increase or decrease of stressors and coping resources over time. These findings, however, do not sufficiently show how these stressors and coping resources are interrelated. For this, path diagrams were employed. Taken collectively, the path diagrams show that social characteristics condition stress exposure and availability of coping resources over time. Initial stress exposure and acquisition of coping resources stem from participants' gender and SES of origin. This initial stress exposure and possession of resources go on to influence the amount of stressors and available coping resources years later. Such later stressors and resources, in turn, predict subsequent depressive symptoms.

Overall, the cross-sectional and longitudinal analyses suggest the utility of the stress process model to account for variation in depressive symptomatology among African American young adults. Although not as much of the variance in depressive symptoms is explained in this sample as compared to other populations (e.g., the results from Turner and Lloyd 1999), the stress process model accounts for a substantial amount of the observed variance. It is possible that more refined models based upon the stress process may account for more variation among different minority populations. Such possibilities should be empirically investigated.

Limitations

Some limitations to this study are evident. First, experiences of major discrimination may not be as prevalent in this relatively younger population. Given the age of this sample, it is possible that many of the participants have not had even the opportunity to experience discrimination in such domains of life as housing or employment. These "major" events may be better for capturing discriminatory experiences of an older sample. Furthermore, conceptualization and measurement of relevant forms of discrimination may be lacking in this data. Many of the events and items measured in this dataset require recognition of more overt

types of behaviors (e.g., being threatened or harassed, people acting as if they are afraid of you). These more overt behaviors may not characterize the current state and experience of discrimination in a society that has increasingly valued equality for all (Taylor and Turner 2002). Scholars should continue to develop better measures of discrimination that capture more relevant, perhaps covert, experiences.

A second limitation is the unique context from which the sample is drawn: South Florida. Given the dominance of Cubans in this area, African Americans have become further subordinated (Portes and Stepick 1993). Such further debasement may result in heightened perceptions of discrimination and exposures to stress. Experiences and impacts of stress and discrimination may therefore differ for other populations outside of South Florida.

Despite these limitations, the results from this study provide evidence of the potential explanatory power of the stress process model for minority populations. Findings also indicate the continued significance of stress process elements on depressive symptoms over time. Future studies should continue to examine the utility of the full stress process model to explain health variations in other populations, such as Latinos and sexual minorities. Studies examining the model over time as it pertains to different types of outcomes, particularly physical health, should also be placed on the agenda. Lastly, continued efforts to more accurately measure stressful experiences for individuals and groups are needed to adequately assess the utility of the stress process model in general. Further exploration and investigation of the explanatory power of the stress process model will lead to a better understanding of how individuals and groups arrive at differential health outcomes. Such findings can be used to inform relevant policy implications for the reduction of poor health and health disparities.

Appendix A. OLS Coefficients of Time 1 CES-D Scores Regressed on Time 1 Predictors and Interactions Between Stress Process Model Mediators and Social Context Variables

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Estimate		Estimate		Estimate		Estimate		Estimate		Estimate	
Age	.304		.311		.297		.299		.276		.326	
	(.202)		(.202)		(.202)		(.202)		(.203)		(.202)	
Gender[a]	-1.732	***	-1.693	***	-1.832	***	-1.807	***	-1.706	***	-1.744	***
	(.415)		(.416)		(.416)		(.416)		(.415)		(.414)	
SES	-.160		-.125		-.158		-.093		-.144		-.160	
	(.215)		(.215)		(.214)		(.215)		(.214)		(.214)	
Household Type[b]	.476		.499		.529		.490		.512		.430	
	(.422)		(.422)		(.421)		(.421)		(.422)		(.420)	
Social Stress	.363	***	.358	***	.332	***	.368	***	.363	***	.361	***
	(.064)		(.064)		(.065)		(.064)		(.064)		(.064)	
Social Support	-.197		-.236		-.208		-.189		-.228		-.212	
	(.157)		(.157)		(.156)		(.156)		(.156)		(.156)	
Self Esteem	-.408	***	-.400	***	-.397	***	-.400	***	-.403	***	-.400	***
	(.085)		(.085)		(.084)		(.085)		(.085)		(.084)	
Mastery	-.112	*	-.115	*	-.119	**	-.107	*	-.114	*	-.124	**
	(.046)		(.046)		(.046)		(.046)		(.046)		(.046)	
Mattering	-.513	***	-.296	**	-.293	**	-.328	**	-.288	**	.022	
	(.144)		(.099)		(.099)		(.100)		(.099)		(.157)	
Emotional Reliance	.168	*	.315	**	.160	*	.160	*	.155	*	.157	*
	(.067)		(.101)		(.067)		(.067)		(.067)		(.067)	
Gender x Mattering	.360	*										
	(.172)											
Gender x Emotional Reliance			-.261	*								
			(.129)									
SES x Social Stress					-.159	*						
					(.062)							
SES x Mastery							.098	*				
							(.041)					
SES x Emotional Reliance									-.140	*		
									(.063)			
HH Type x Mattering											-.467	**
											(.180)	
Intercept	12.004	*	19.386	***	17.134	***	14.585	**	20.018	***	11.897	*
	(5.034)		(4.849)		(4.938)		(4.787)		(4.854)		(5.019)	
R^2	.367		.367		.371		.369		.368		.371	
N	428		428		428		428		428		428	
F-Statistic	21.94		21.89		22.25		22.12		22.01		22.27	

[1]p<.10; *p<0.05; **p<0.01; ***p<0.001

Notes: Unstandardized OLS regression coefficents; standard errors are in parentheses; coefficients for variables in interaction term are for the centered form of variables

[a]Ref group = Female

[b]Ref group = Two Parent Household

Appendix B. OLS Coefficients of Time 2 CES-D Scores Regressed on Time 1 Predictors, Time 2 Predictors, Time 1 CES-D, and Interactions Between Stress Process Model Mediators and Social Context Variables

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Estimate		Estimate		Estimate		Estimate		Estimate				Estimate	
Age	.042		.098		.078		.055		.037		.107		.074	
	(.225)		(.225)		(.225)		(.224)		(.222)		(.227)		(.225)	
Gender	-.122		-.074		-.139		-.109		-.061		-.132		-.173	
	(.432)		(.431)		(.431)		(.431)		(.426)		(.433)		(.433)	
SES	.216		.002		.017		-.044		.019		.008		-.015	
	(.551)		(.215)		(.216)		(.216)		(.213)		(.217)		(.216)	
Household Type[b]	.435		.507		.402		.441		.492		.426		.410	
	(.440)		(.433)		(.436)		(.434)		(.428)		(.437)		(.437)	
Social Stress	-.088		-.062		-.072		-.068		-.053		-.059		-.062	
	(.079)		(.078)		(.078)		(.078)		(.078)		(.079)		(.079)	
Social Support	-.292		-.251		-.316		-.326		-.306		-.279		-.299	
	(.211)		(.209)		(.211)		(.212)		(.207)		(.210)		(.211)	
Self Esteem	-.068		-.046		-.027		-.075		-.068		-.040		-.074	
	(.096)		(.096)		(.098)		(.095)		(.094)		(.098)		(.096)	
Mastery	.163	*	.075		.074		.071		.065		.071		.074	
	(.067)		(.052)		(.052)		(.052)		(.052)		(.052)		(.052)	
Mattering	.130		.364	*	.135		.183		.144		.128		.159	
	(.118)		(.153)		(.118)		(.120)		(.116)		(.118)		(.120)	
Emotional Reliance	.122		.118		.129	t	.115		.138	t	.137	t	.136	t
	(.075)		(.075)		(.075)		(.075)		(.074)		(.075)		(.075)	
Social Stress Time 2	.487	***	.470	***	.471	***	.475	***	.436	***	.471	***	.471	***
	(.094)		(.093)		(.093)		(.093)		(.093)		(.094)		(.094)	
Social Support Time 2	.049		.060		.065		.111		.068		.052		.069	
	(.184)		(.183)		(.184)		(.186)		(.182)		(.184)		(.184)	
Self Esteem Time 2	-.146		-.141		.013		-.126		-.179	*	-.165	t	-.130	
	(.091)		(.091)		(.112)		(.091)		(.090)		(.091)		(.091)	
Mastery Time 2	-.086		-.100	t	-.099	t	-.097	t	-.099	t	-.100	t	-.088	t
	(.052)		(.052)		(.052)		(.052)		(.052)		(.052)		(.052)	
Mattering Time 2	-.211	*	-.192	t	-.206	*	-.061		-.217	*	-.203	*	-.251	*
	(.098)		(.098)		(.098)		(.114)		(.097)		(.098)		(.100)	
Emotional Reliance Time 2	.169	*	.180	**	.163	*	.173	**	.425	***	.161	*	.166	*
	(.066)		(.066)		(.066)		(.065)		(.097)		(.066)		(.066)	
CES-D Time 1	.256	***	.266	***	.255	***	.254	***	.228	***	.257	***	.254	***
	(.053)		(.053)		(.053)		(.053)		(.053)		(.053)		(.053)	
Gender x Mastery Time 1	-.186	*												
	(.083)													
Gender x Mattering Time 1			-.476	*										
			(.184)											
Gender x Self Esteem Time 2					-.358	*								
					(.148)									
Gender x Mattering Time 2							-.390	*						
							(.154)							
Gender x Emotional Reliance Time 2									-.424	***				
									(.121)					
SES x Self Esteem Time 2											-.123	*		
											(.061)			
SES x Mattering Time 2													-.142	*
													(.067)	
Intercept	7.982		6.214		0.346		1.286		9.760	t	.198		.933	
	(5.600)		(5.924)		(5.661)		(6.346)		(5.666)		(5.715)		(6.403)	
R^2	.453		.457		.455		.456		.468		.452		.452	
N	282		282		282		282		282		282		282	
F-Statistic	12.11		12.28		12.19		12.25		12.85		12.03		12.06	

[t]p<.10; *p<0.05; **p<0.01; ***p<0.001

Notes: Unstandardized OLS regression coefficents; standard errors are in parentheses; coefficients for variables in interaction term are for the centered form of variables

[a]Ref group = Female

[b]Ref group = Two Parent Household

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